

• •

(43)Date of publication of application : 30.01.1991

(51)Int.Cl.

**A61M 29/02**

**A61L 29/00**

**A61M 25/00**

**(21)Application number : 01-157149**

(71)Applicant : OLYMPUS OPTICAL CO LTD

(22)Date of filing : 20.06.1989

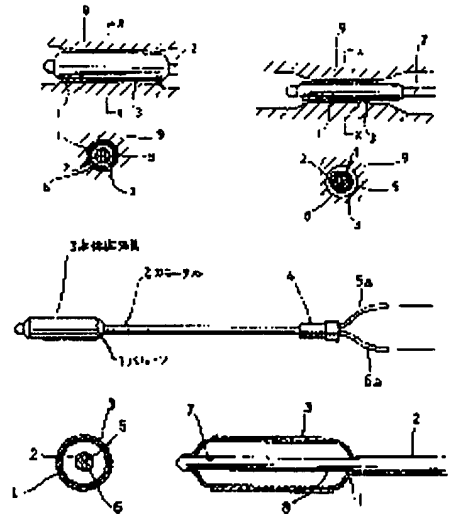
(72)Inventor : UEDA YASUHIRO

**(54) LIVING BODY PIPE LINE EXPANDING TOOL**

**(57)Abstract:**

**PURPOSE:** To obtain a safety living body pipe line expanding tool ensuring the expansion of a strangulated living body pipe line and easy to regulate the expanding form by providing a cylindrical expanding tool body consisting of a shape memory resin which is fitted to the outer circumference of a balloon in such a manner as to be capable of pulling, softened by the expansion and heating of the balloon, and hardened with keeping its expanded state by the expansion and cooling of the balloon.

**CONSTITUTION:** A catheter 2 is inserted into a living body pipe line to situate the part of a balloon 1 in a strangulated part 9. The balloon 1 at this time is contracted, and an expanding tool body 3 is wound on the outer circumference of the balloon 1. The expanding tool body 3 is heated to a shape recovering temperature or more and softened. When the heating is stopped followed by cooling to less than the shape recovering temperature, the expanding tool body forms a comparatively hard plastic state and is fixed to the outer circumference of the balloon 1. The part of the balloon 1 is advanced to the strangulated part 9 by pushing the catheter 2. A hot water of the shape recovering temperature or more is injected into the balloon 1 from a water filling pipe line 5 and discharged from a drain pipe line 6 to conduct hot water circulation. The expanding tool body 3 is increased in temperature and softened, and the memorized shape is recovered to expand the strangulated part 9. A cooling water of less than the shape recovering temperature is circulated, and the expanding tool body 3 is hardened to maintain this shape.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

Copyright (C); 1998,2003 Japan Patent Office